

## CLAIMS

What is claimed is:

1. A fan motor, comprising:
  - a stator;
  - a rotor surrounded by the stator;
  - a rotating shaft inserted into the rotor that rotates with the rotor, the rotating shaft extending from both ends of the rotor;
  - a support unit mounted to a front of the stator, and having a through hole to receive the rotating shaft; and
  - a bearing inserted in the through hole of the support unit to rotatably hold the rotating shaft passing through the bearing, a front part of the bearing extending outwardly from the through hole of the support unit by a predetermined length to rotate both ends of the rotating shaft on a fixed axis.
2. The fan motor according to claim 1, wherein the bearing has a rear part and the support unit has a boss that integrally and rearwardly extends from an edge of the through hole by a specified amount, with the rear part of the bearing being set in the boss.
3. The fan motor according to claim 2, wherein the front part of the bearing is larger in diameter than the rear part of the bearing.
4. The fan motor according to claim 2, further comprising a stopper that fits over an insert groove formed around an outer surface of the rotating shaft in front of the bearing to prevent the rotor and the rotating shaft from being rearwardly removed from the stator.
5. The fan motor according to claim 4, wherein the stopper has a semi-circular cross-section, and has, at an inner circumference thereof, a plurality of locking projections that engage the insert groove to hold the stopper within the insert groove.
6. The fan motor according to claim 2, wherein the bearing is an oilless bearing.

7. The fan motor according to claim 6, further comprising an oil absorption member soaked with oil and a depressed seat provided around the through hole of the support unit, the oil absorption member being seated in the depressed seat to feed oil around the bearing as the rotating shaft rotates.

8. The fan motor according to claim 7, wherein the oil absorption member is an annular oil absorption member.

9. The fan motor according to claim 7, further comprising an oil cap covering the depressed seat to prevent exposure of the oil absorption member to an exterior of the stator.

10. A microwave oven comprising:  
a cabinet to define an external appearance of the microwave oven;  
a cooking cavity and an electrical device cavity within the cabinet;  
a blowing fan installed in the electrical device cavity; and  
a fan motor to rotate the blowing fan, the fan motor comprising  
a stator,  
a rotor surrounded by the stator,  
a rotating shaft inserted into the rotor that rotates with the rotor, the rotating shaft extending from both ends of the rotor,  
a support unit mounted to a front of the stator, and having a through hole to receive the rotating shaft, and  
a bearing inserted in the through hole of the support unit to rotatably hold the rotating shaft passing through the bearing, a front part of the bearing extending outwardly from the through hole of the support unit by a predetermined length to rotate both ends of the rotating shaft on a fixed axis.

11. The microwave oven according to claim 10, wherein the bearing has a rear part and the support unit has a boss, the boss integrally and rearwardly extending from the support unit to form a cavity corresponding to the through hole, the rear part of the bearing being set in the through hole and the boss.

12. The fan motor according to claim 11, wherein the front part of the bearing is larger in diameter than the rear part of the bearing.

13. The microwave oven according to claim 11, further comprising a stopper that fits over an insert groove formed around an outer surface of the rotating shaft in front of the bearing to prevent the rotor and the rotating shaft from being rearwardly removed from the stator.

14. The microwave oven according to claim 13, wherein the stopper has a semi-circular cross-section, and has, at an inner circumference thereof, a plurality of locking projections that engage the insert groove to hold the stopper within the insert groove.

15. A blowing unit, comprising:  
a fan housing;  
a fan mounted to a side of the fan housing; and  
a fan motor to rotate the fan, the fan motor being mounted to another side of the fan housing and comprising,  
a stator,  
a rotor surrounded by the stator,  
a rotating shaft inserted into the rotor that rotates with the rotor, the rotating shaft extending from both ends of the rotor,  
a support unit mounted to a front of the stator, and having a through hole to receive the rotating shaft, and  
a bearing inserted in the through hole of the support unit to rotatably hold the rotating shaft passing through the bearing, a front part of the bearing extending outwardly from the through hole of the support unit by a predetermined length to rotate both ends of the rotating shaft on a fixed axis.

16. The blowing unit according to claim 15, wherein the bearing has a rear part and the support unit has a boss that integrally and rearwardly extends from an edge of the through hole, with the rear part of the bearing being set in the boss.

17. The blowing unit according to claim 16, wherein the front part of the bearing is larger in diameter than the rear part of the bearing.

18. The blowing unit according to claim 16, further comprising a stopper that fits over an insert groove formed around an outer surface of the rotating shaft in front of the bearing to prevent the rotor and the rotating shaft from being rearwardly removed from the stator.

19. The blowing unit according to claim 18, wherein the stopper has a semi-circular cross-section, and has, at an inner circumference thereof, a plurality of locking projections that engage the insert groove to hold the stopper within the insert groove.

20. The blowing unit according to claim 16, wherein the bearing is an oilless bearing.

21. The blowing unit according to claim 20, further comprising an oil absorption member soaked with oil and a depressed seat provided around the through hole of the support unit, the oil absorption member being seated in the depressed seat to feed oil around the bearing as the rotating shaft rotates.

22. The blowing unit according to claim 21, wherein the oil absorption member is an annular oil absorption member.

23. The blowing unit according to claim 21, further comprising an oil cap covering the depressed seat to prevent exposure of the oil absorption member to an exterior or the stator.